Clinical Decision Support

- HIV Management System (HMS)
- Women's Health
- iCare
- Pediatrics
- Diabetes
- Asthma
- Obstetrics
- Immunizations

HIV Management System (HMS)

Software Application

GOALS

- Extend the RPMS suite of case management software into a condition-specific area

- Provide case managers and specialists with a tool to capture condition-specific data related to HIV and AIDS

- Assist non-specialist providers in decision making through use of clinical reminders, provider guidelines and reports

- Ultimately to improve quality of health care delivery and improve outcomes for HIV/AIDS patients

EXPERIENCES:

- This project was initiated by requests from the field

- A workgroup made up of physicians, pharmacists, epidemiologists, nurses and others was assembled to identify desired functional features for the software

- The application was designed specifically for use by both general and specialist health care providers

- Developed algorithm logic based on national clinical guidelines for care

- This logic utilized standardized international clinical code sets to create definitions for the algorithms and to allow for customization from site to site

HMS FEATURES

- Presents an initial candidate list of patients from the facility's RPMS data base who are potentially eligible to be included in a register

- Candidate search logic is based on diagnosis, HIV test results or documented ARV medications

- Users can create and manage a register of HIV/AIDS and/or "at risk" patients

- Can be set up to search the database for new candidates on a user-defined schedule

HMS FEATURES
(cont…)

- Incorporates artificial intelligence algorithms to provide HIV-related reminders to assist case managers and providers in managing patient care

- Identifies patients who are due or overdue for various tests, immunizations and other procedures related specifically to HIV/AIDS

- Provides both individual patient management and reporting capabilities and population-based tracking and reporting

- Provides an HIV Quality of Care Report

SET UP

- The Case File Manager will prepare the software for use at the specific site by:
  - assigning "editor or "reader" access to other providers
  - populating the medication and laboratory taxonomies with site specific data
  - determining the state's reporting criteria
- The Case File Manager populates the HMS register by:
  - running a logic based auto population of the "candidate list" and then reviewing the list to determine who should be included on the register
  - manually adding appropriate patients
  - running a Q-man search

DATA IN

- Populate the Register

- Select an individual patient record for review

- Enter register information including:
  - Initial DX date
  - CDC Classifications
  - Etiology
  - HAART Status
  - Notifications to State and Partners

- Review patient data (i.e. lab; radiology; pharmacy)

- Enter historical data about tests/services received outside facility

DATA OUT

- HMS Supplement: a Health Summary presenting patient data tailored to this specific condition

- HIV-related Reminders

- Provider Guidelines

- Reports:
  - Due/Overdue Report: for one patient or groups of patients
  - HIV Quality of Care Audit for your Register patients
  - State Surveillance Form and Report
  - Register Master List

HIV Quality of Care Audit

TOTAL PATIENTS REVIEWED: 25

		#	%
Gender: Male		18	72.0%
Female		7	28.0%
Age: <15 yrs	3		12.0%
15-44 yrs	17		68.0%
45-64 yrs	5		20.0%
>64 yrs	0		0.0%

LABORATORY EXAMS:

	#	%
# w/ CD4 count		
(in last six months)	20	80.0%
most recent < 50	3	15.0%
most recent 50-199	8	40.0%
most recent=>200	8	40.0%
Undetermined	1	5.0%
# w/ Viral Load		
(in last six months)	18	72.0%
<100,000 copies/ml	15	83.3%
=>100,000 copies/ml	3	17.7%
# w/ RPR (Syphilis Test)		
(in the last 12 months)	14	56.0%
Reactive	1	7.1%
Non-Reactive	10	71.4%
Refused	0	0.0%
NMI	0	0.0%
Undetermined	3	21.4%
# w/ Chlamydia Screen		
(in the last 12 months)	20	80.0%
Positive	2	10.0%
Negative	10	50.0%
Refused	5	25.0%
NMI	0	0.0%
Undetermined	3	15.0%
# w/ Gonorrhea Screen		
(in the last 12 months)	8	32.0%
Positive	2	25.0%
Negative	3	37.5%
Refused	1	12.5%
NMI	0	0.0%
Undetermined	2	25.0%

# w/ Tuberculosis tests	#	%
Needed	23	92.0%
PPD Received	17	73.9%
PPD+	2	11.7%
w/ Treatment Given	0	0.0%
PPD-	8	47.1%
PPD Refused	6	35.3%
PPD Status Unknown	1	5.9%

VACCINATIONS:	#	%
# w/ Pneumovax		
(in last 5 years (or 2 ever)	17	68.0%
# w/ Tetanus		
(in past 10 years)	22	88.8%

EXAMS : (Yearly)	#	%
Dilated Eye Exam	14	56.0%
Dental Exam	7	28.0%
Pap Smear	5	100.0%

TREATMENT: (past 6 mos.)

	#	%
ARV Therapy given	21	84.0%
HAART	14	66.7%
Mono Therapy	2	9.5%
Other Combination	5	23.8%
PCP Prophylaxis given		
(if CD4 ≥50 and <200		
in last six months)	7	87.5%
MAC Prophylaxis given		
(if CD4 <50		
in last six months)	1	33.3%

RISK FACTORS:	#	%
Tobacco Use Screening	19	76.0%
Current Tobacco User	9	47.4%
If Yes, Counseled	6	66.7%
Not a Current User	6	31.6%
Not Documented	4	21.1%
Substance Abuse Screening	15	60.0%
Current User	9	60.0%
I/V - Yes	Unavailable	
Not a Current User	Unavailable	
Not Documented	6	40.0%

Women's Health
V 3.0
Software Application

GOALS

- Add major enhancements to the existing Resource and Patient Management System (RPMS) WH application

- Improve the ability for Indian Health Service (IHS) providers to proactively track and manage their patients' care by retrieving information from the RPMS database and presenting it in a useable way

- Minimize the "fall through the cracks" syndrome common in many clinical practices

- Minimize or eliminate the need for duplicative entries into RPMS

- Centralize data so that the same, updated information is available to all providers with access

EXPERIENCES:

- This project was initiated by requests from the field

- A workgroup made up of physicians, pharmacists, epidemiologists, nurses and others was assembled to identify desired functional features for the software

- The application was designed specifically for use by both general and specialist health care providers

- Developed algorithm logic based on national clinical guidelines for care

- This logic utilized standardized international clinical code sets to create definitions for the algorithms and to allow for customization from site to site

Women's Health Features

- An interface through which data regarding <u>any</u> female patient in the RPMS database can viewed.

- Displays data pulled from other RPMS components in a format that is useful to the provider.

- Providers may establish multiple registers at each site. This will enable providers to track smaller group of patients without having to look at the entire female population at the site.

- Integrated reminders for Pap smears and Mammograms

Women's Health Features
cont..

- Flags to make providers aware of missing information

- Procedure Workflow which will enable the provider to keep track of a patient's care and minimize the "falling through the cracks" syndrome that often accompanies health care. Each Procedure Workflow consists of four steps:
    1. Procedure
    2. Results
    3. Follow up
    4. Notification.

WH Patient Record

```
                         DEMO INDIAN HOSPITAL
Patient:      Mouse, Minnie        HRN: 123456       Age:  49          Gender: F
Address:      P.O. Box 123 Disney, CA 90876      DOB:  10/10/55
Community:    Toon Town                          Race: American Indian or
Home Phone:   111-222-3333                       Ethnicity: Non Hispanic
Alt Phone:    222-333-4444_____        CDC Income Eligible?  No_____
WH Register Status: Active_____        WH Register Name: Cindy's Women over 40___
DPCP: Brown, John                         Case Manager: White, Stella
Last Visit:  04/07/2005 Dental            Next Appt: 12/01/2005 08:30  Podiatry_____
Last Pap Smear:    06/14/2005             Last Mammogram:    07/01/2005
Last Osteo Screen:                        Last IPV Screen:   06/24/2000
G4P3 F3P0A1LC3     LMP: 10/01/2000        Currently Pregnant? No
Current Family Planning Method:  None
Flags? Yes!                                       Family History?  Yes_____
_____Enter ?? for more actions_____
FLG  Flags              REM  Reminders        PRV  Providers
ED   Edit Pt Record Data  REF  Referrals        GUID Clinical Care Guidelines
HS   Health Summary/Supp  ADD  Add Hx Pt Data   AP   Appt Review
HX   Family History       PCC  PCC Functions    ADM  Pt Admin Functions
RFAC Reproductive Factors IPV  IPV Screening    RM   Reg Management
PRO  Proc Workflow                              SEL  Select Next Pt
```

Summary of Procedure Workflows

BREAST HEALTH PROCEDURE WORKFLOWS:
 *PROCEDURE: Mammogram DX Bilat   DATE: 01/14/2005
 RESULT: WNL/Normal   DATE: 01/16/2005
 FOLLOW-UP: Mammogram DX Bilat   DATE: 01/14/2006
 NOTIFICATIONS: Letter   DATE: 01/18/2005

_____

CERVICAL HEALTH PROCEDURE WORKFLOWS:
 *PROCEDURE: Pap Smear   DATE: 09/01/2005
 RESULT: DATE:
 FOLLOW-UP: DATE:
 NOTIFICATIONS: DATE:
 ----
 *PROCEDURE: Gynecology Oncology Consult   DATE: 03/12/2005
 RESULT: See Patient Chart   DATE: 03/14/2005
 FOLLOW-UP: Pap Smear   DATE: 06/12/2005
 FOLLOW-UP: Colposcopy w/ Biopsy   DATE:
 NOTIFICATION: Letter   DATE: 03/15/2005
 ----
 *PROCEDURE: Colposcopy w/ Biopsy   DATE: 03/05/2005
 RESULT: CIN III   DATE: 03/10/2005
 FOLLOW-UP: Gynecology Oncology Consult   DATE: 04/10/2005
 NOTIFICATION: In Person   DATE: 03/10/2005
 ----
 *PROCEDURE: Pap Smear   DATE: 01/30/2005
 RESULT: ASC-US   DATE: 02/09/2005
 FOLLOW UP: Colposcopy w/ Biopsy   DATE: 03/09/2005
 NOTIFICATION: In person   DATE: 02/10/2005
_____

SKELETAL HEALTH PROCEDURE WORKFLOWS: (none found)

_____

Procedure Workflow Screen

Women's Health v3.0   [Today's Date/Time]   pg x of y

DEMO INDIAN HOSPITAL
PROCEDURE WORKFLOW

Patient Name: MOUSE, MINNIE   HRN: 123456   DOB: 10/10/1955
_____

Procedure Workflow: Status:
09/01/2003   Pap Smear   Open
_____

Procedure: Pap Smear   Procedure Date: 09/01/2005
Provider: Blue, Bobbie NP   Location: Women's Clinic
Clinical History: History of Abnormal Pap and Colposcopy
Comments:
Obtain results no later than: 09/08/2005

Results: Results Date: 09/20/2005
Primary: Neg-Inflammation
Comments: Similar results to previous Pap Smear
Secondary:
Comments:
Determine Follow-up recommendations no later than: 09/27/2005

Follow-up: Recommendation for Follow-up Date:
Primary: Due Date:
Secondary: Due Date:
Comments:
Notify the patient no later than:

Notification: Notification Date:
First type: Date:
Second type: Date:
Third type: Date:
Comments:

INTEGRATED CASE MANAGEMENT iCare

Software Application

GOALS

- Provide a useful tool to a wide variety of providers at I/T/U sites to facilitate the proactive management of their patients' healthcare and ultimately improve the lives of the communities IHS serves

- Provide users with integrated decision support and patient management for single or multiple disease states and or care conditions

- Allow IHS providers to manage patients by retrieving any and all information from the RPMS database and bringing it together under one graphical user interface (GUI)

- Provide an integrated patient record that will minimize stovepipe management

- Provide a tool that will incorporate information specific to an individual's household and community

EXPERIENCES:

- A workgroup made up of physicians, pharmacists, epidemiologists, nurses and others was assembled to identify desired functional features for the software

- The application was designed specifically for use by a wide variety of users

- Site visits were conducted by usability experts to collect input from users at a variety of sites

iCare Features

- iCare will be a component within the existing Resource Patient Management System (RPMS)

- iCare is the graphical user interface (GUI) for a fully integrated case management system

- iCare will integrate and pull together all the information available about a patient into one view so the "whole picture" is appreciated

- iCare will display patient "flags" related to care management, including abnormal labs, hospitalizations, ER visits and unanticipated ER returns

iCare Features
cont.

- iCare will utilize logic written for other clinical applications to "tag" individuals with pre-defined diagnoses and conditions

- iCare will generate nationally-defined general prevention and disease/condition specific healthcare reminders that are integrated to display most stringent criteria applicable to the patient's chronic condition(s)

- iCare will use "official" GPRA report logic on user-defined populations that are not currently available in the Clinical Reporting System (CRS)

- iCare will provide users with the ability to create multiple, predefined and easy-to-define patient panels that are customizable

iCare Features
cont.

- iCare will allow users to "share" panels with others and will also provide a "surrogate" feature that will enable one user to create a panel for another user

- iCare will provide clinical users with a fully integrated tool to manage any patient within the context of his/her entire health, physical and environmental conditions, not just within the isolation of one disease state, e.g., diabetes

- iCare is intended to be a "wrapper" application for current and future disease/condition specific register management systems (i.e. HIV, CVD, Diabetes, Asthma, Women's Health, Immunizations etc)

- iCare will incorporate information regarding both the patient's household and community

Anticipated Deployment Dates

- HIV Management System – July 2006

- Women's Health – end of CY 2006

- iCare – end of CY 2006